FOREST SERVICE MANUAL
ROCKY MOUNTAIN REGION (REGION 2)
DENVER, CO

FSM 2600 - WILDLIFE, FISH AND SENSITIVE PLANT HABITAT MANAGEMENT

CHAPTER 70 – THREATENED, ENDANGERED AND SENSITIVE PLANTS AND ANIMALS

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Approved: Steven Lohr – Deputy Regional Forester

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Summary of Changes	Version or Amendment	Number of Pages
New Document	FSM 2600, Ch 70	33
Superseded Document(s) by Issuance Number and Effective Date	2600-2023-1, 02/21/2023	33

DIGEST

2672.11 (4) – Identification of Sensitive Species. Removes Weber's Whitlow grass (*Draba weberi*) because a recent genetics analysis confirmed it is not a distinct species. Removes the desert massasauga (*Sistrurus catenatus* ssp. *edwardsii*) because more recent genetics research showed it is not a distinct subspecies of the western massasauga.

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2670.2 – OBJECTIVES

2670.22 – SENSITIVE SPECIES

3. Develop and implement conservation strategies for sensitive species and their habitats in coordination with other Forest Service units, managing agencies and landowners.

4. Coordinate management objectives to conserve sensitive species with state and federal agencies, tribes and other cooperators as appropriate. Approaches may include collaboratively developing individual species or multi-species conservation strategies, formalizing interagency conservation agreements, and incorporating recommendations into management direction set forth in Land and Resource Management Plans.

2670.3 – POLICY

2670.32 – SENSITIVE SPECIES

6. Integrate available scientific information, including Regional species evaluations, species and ecosystem assessments, and conservation strategies, into Forest Service planning and implementation.

7. Conduct appropriate inventories and monitoring of sensitive species to improve knowledge of distribution, status, and responses to management activities, coordinating efforts within the Region and with other agencies and partners where feasible.

8. Analyze and manage for sensitive species in groups and habitat complexes, when feasible, to realize efficiencies and ecological soundness of multi-species and ecosystem management approaches.

2670.4 – RESPONSIBILITY

2670.45 – Forest Supervisors

7. In accordance with guidance in FSM 2670.45, designate journey-level biologists and botanists who are qualified to review biological evaluations, specifying the type(s) of organisms (fish and aquatic invertebrates, wildlife, terrestrial invertebrates, and plants) for which the individual is qualified. Qualifications include: meeting the Office of Personnel Management Qualification Standards for General Schedule Positions for the appropriate job series (0482, 0486, 0430) at the GS-9 level or above; sufficient training in procedural and substantive requirements for biological evaluations, including knowledge of the Endangered Species Act and Forest Service policy in this FSM; and one year or more of experience in conducting biological evaluations that meet professional standards Use expert-level staffing to assess the adequacy of training and

experience (FSM 2604.21 paragraph 5). Provide a list of personnel qualified to review biological evaluations to the Regional Office annually or as updates are completed.

2670.5 - DEFINITIONS

Action. All activities or programs authorized, funded or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas (50 CFR 402.02). Both programmatic and project-level proposals are considered to be actions subject to the Endangered Species Act.

Biological Assessment. Information prepared to comply with Section 7 of the Endangered Species Act for major construction activities to determine whether listed and proposed species and designated and proposed critical habitat may be present in the action area, and the evaluation of potential effects of the action on such species and habitat. A “major construction activity” is a major Federal action significantly affecting the quality of the human environment, that is, for which an Environmental Impact Statement is prepared (50 CFR 402.02). A Biological Assessment may be prepared for any project for which formal consultation is required.

Biological Evaluation. A documented Forest Service review of Forest Service actions in sufficient detail to: 1) comply with the requirements of the Endangered Species Act; 2) ensure that actions do not contribute to loss of viability of native or desired non-native plant or animal species, or cause a trend towards listing under the ESA; and 3) provide a standard by which to ensure that endangered, threatened, proposed, and sensitive species and critical habitats receive full consideration in Forest Service decision-making. A biological evaluation may be used to satisfy consultation requirements for a biological assessment (FSM 2672.4, FSM 2600-2009-1).

Conserve. The use of all methods and procedures necessary to bring an endangered species or threatened species to the point at which the protections pursuant to the ESA are no longer necessary, or to avoid causing a species to become threatened or endangered, or to maintain viable populations in the planning area.

Conservation Strategy. A document that establishes conservation objectives and identifies the management actions necessary to conserve a species, species group or ecosystem. The strategy can be incorporated into Forest Service plans through the National Environmental Policy Act (NEPA) process with appropriate line officer approval.

Conservation Agreement. A formal agreement with cooperating or regulatory agencies that identifies how a conservation strategy will be implemented.

Programmatic Consultation. A generic term encompassing several different types of ESA Section 7 consultations: 1) evaluation of strategic management plans that may establish objectives, standards, guidelines, or design criteria to which future actions must adhere; 2) evaluation of an overall Federal “program”; or 3) evaluation of a group of similar proposed actions, or different types of actions proposed within a specific geographic area. Three commonly used approaches for documenting programmatic consultations are tiered,

appended, and batched Biological Opinions.

2671 – COOPERATION

2671.44 – Determination of Effects on Listed or Proposed Species

Seek to improve the efficiency and effectiveness of consultations and conferences under Section 7 of the Endangered Species Act and to enhance the conservation of imperiled species by using a streamlining process as appropriate. Streamlining is accomplished by emphasizing coordination and communication during informal consultation. Streamlining actions may include: development of criteria or screens to improve consistency in effects analysis and determinations; identification of design criteria intended to benefit particular species; standardizing the format used to present information and analysis; recommending alternative approaches, such as programmatic consultations, to handle consultation workloads; and establishing procedures to expedite dispute resolution.

2672 – PLANNING FOR MANAGEMENT AND RECOVERY

2672.11 - Identification of Sensitive Species

1. Species identified as Candidates by the U.S. Fish and Wildlife Service will automatically be placed on the sensitive species list in Region 2.

4. To be eligible for designation by the Regional Forester as sensitive, the species (or subspecies, variety or stock) must be recognized by taxonomic experts and must be known or likely to occur on National Forest System lands within the Rocky Mountain Region. Sensitive species status applies throughout the range of the species on National Forest System lands within the Rocky Mountain Region. The Regional Forester's sensitive species list for the Rocky Mountain Region is shown in exhibit 01.

5. The evaluation criteria used to determine whether a species warrants sensitive status (FSM 2670.5) are shown in exhibit 02.

6. The list of sensitive species is reviewed and updated periodically. Forest Supervisors may recommend additions or deletions to the list based on the criteria in exhibit 02. Recommendations from other interested agencies, groups, and individuals with information pertinent to sensitive species are considered in the revision process. A species will be removed from the sensitive list when sensitive status is superseded by listing or proposed listing under the Endangered Species Act. A species that is removed from listing under the ESA because recovery criteria have been met is automatically added to the sensitive species list for a period of at least 5 years to ensure that its recovery is maintained and monitored.

7. For newly designated sensitive species, current or planned Forest Service actions that are well underway (or are completed) at the time an updated sensitive species list goes

into effect are exempt from requirements to conduct a biological evaluation for that species. This exemption is intended to enable actions that have been planned to use the previous sensitive species list to go forward. Exemption in these instances does not relieve the responsible official from compliance with other statutory and regulatory mandates, including: 1) National Environmental Policy Act requirements to evaluate significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts (40 CFR 1502.9, FSH 1909.15 sec. 18), and 2) National Forest Management Act requirements specify guidelines when developing, maintaining and revising plans to provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives (16 USC 1600).

2672.4 – BIOLOGICAL EVALUATIONS

2672.41 – Objectives of the Biological Evaluation

1. To ensure that Forest Service actions do not contribute to loss of viability of threatened, endangered, proposed, or sensitive plant and animal species, or contribute to a trend towards Federal listing under the Endangered Species Act of any species.

4. To incorporate concerns for sensitive species throughout the planning process, identifying opportunities for enhancement and reducing any potential negative impacts.

2672.42 – Standards for Biological Evaluations

1. A list of endangered, threatened, and proposed species and critical habitat known or likely to occur in the action area may be requested from the U.S. Fish and Wildlife Service (FWS), or a list may be submitted to FWS for concurrence.

2. Coordinate mapping of habitat with the FWS and other management agencies as appropriate.

3. An analysis of the direct, indirect, and cumulative effects of the actions under all alternatives considered through the NEPA process on federally listed, proposed, or sensitive species, or habitat required for recovery or to meet Forest Service objectives.
5. A determination of the effects or impacts on each species, and summary of the rationale for each determination

    a. For federally listed species, or species proposed for such listing, and for critical habitat or proposed critical habitat, use the determination statements specified in Endangered Species Act (ESA) Section 7 regulations (50 CFR 402) and in accordance with FSM 2671.43 through 2671.45.

b. For Region 2, sensitive species make a determination of:

i. "No impact"

ii. "Beneficial impact"

iii. "May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing", or

iv. "Likely to result in a loss of viability in the Planning Area, or in a trend toward federal listing"

2672.43 – Procedure for Conducting Biological Evaluations

The intensity and detail of the biological evaluation may vary and should be commensurate with the risk associated with the action and the vulnerability of the species involved. Document the biological evaluation in accordance with the standards established in FSM 2672.42 of this document. When a recovery plan or conservation strategy exists for a species and is applicable to the actions being analyzed, evaluate and document consistency of the action with the recovery plan or conservation strategy.

1. Step 1. Pre-field Review

Follow current direction in FSM 2672.42 of this document to identify all federally listed or proposed species. Review records and contact knowledgeable Forest Service employees and other experts for known occurrences, distribution maps, and habitat information. As appropriate, contact state and federal wildlife, fish, and plant management agencies, Natural Heritage Programs, research stations, universities, or other organizations about species occurrence and habitat requirements. Document all sensitive species and their habitats that are known or likely to be present in the analysis area, or that the proposed action potentially affects.

Briefly summarize the habitat needs and ecological requirements of the species. Identify seasonal patterns and recommend when field surveys can be conducted to evaluate species and/or habitat presence, if needed. Describe management direction applicable to habitat that may be affected, such as Forest Plan standards and guidelines. FSM 2672.43 Exhibit 01 outlines the procedure to use during the Pre-field Review (Step 1) to determine whether Field Reconnaissance (Step 2) is needed to complete the biological evaluation.

2. Step 2: Field Reconnaissance

The purpose of this step is to gain a more specific understanding of which habitats and species exist in the action area, and to gather information that will help to evaluate the significance of the area to the species. The need for and extent of field reconnaissance should be commensurate with the risk associated with the proposal, the degree of certainty desired, and the level of knowledge already at hand.

Identify and describe all habitats known to be important for the species in the analysis area. As needed, design and conduct field surveys to confirm species' presence and habitat suitability assess accuracy of remote sensing data, and collect any other data deemed necessary. Assess and refine knowledge of how habitats exist on the landscape and how species occupy and use their habitats.

3. Step 3. Analysis of Effects and Determination.

The purpose of this analysis for federally listed or proposed species is to determine whether the action may affect the species or critical habitat. The purpose of this analysis for sensitive species is to determine whether the action will contribute toward federal listing or loss of viability in the Planning Area. As part of the interdisciplinary process of designing alternatives under NEPA, develop design criteria to meet objectives for threatened, endangered, proposed, and sensitive species, and identify any necessary mitigation measures. The analysis must consider direct, indirect, and cumulative effects of the proposed action and any alternatives on the species and its habitat.

Factors that may be considered in the analysis of effects include: the proportion of the species' total population and range that is in the analysis area or is affected by the action; whether the habitat affected by the action is necessary for critical life functions (for example, feeding, breeding, nesting); timing, frequency and duration of human activity, especially as it relates to significant behavioral modification; any anticipated reductions in numbers or distribution of the species; and the potential of the species to recover from short-term impacts.

Based on the analysis, make a determination of the effects of each of the alternatives on federally listed or proposed species and critical habitat, and on Region 2 sensitive species. Use the appropriate language for each federally listed species, critical habitat, proposed species, proposed critical habitat (FSM 2671.43 through 2671.45), and sensitive species, and summarize the rationale for each.

4. Step 4. Documentation.

The purpose of this step is to check the documentation record that has been compiled. Documentation is essential to the biological evaluation process and is to be conducted as the biological evaluation proceeds, rather than after the fact.

Documentation may be referenced or included as part of the appropriate NEPA document, contained in the biological evaluation itself, or held in district or forest files. Ensure that all requirements and mitigation measures are included in the decision document and implementation plans or contracts.

Documentation should include contacts with agencies, especially the FWS, individuals, and organizations, (dates, names of people and organizations, summary of information), and sources of data used in developing the biological evaluation. The list of species considered must be documented. Indicate species, for which surveys were conducted, describe the survey methods used, provide maps showing which areas were surveyed, record the date(s) of

survey(s) and the people who conducted the survey(s), and provide the results. Enter new data into appropriate corporate databases and notify Natural Heritage Programs and other cooperating agencies as appropriate. Use literature citations to support conclusions on effects, habitat relationships, species ecology, and recommendations for removing or avoiding adverse effects

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2672.11 – Exhibit 01

Regional Forester's Sensitive Species
Rocky Mountain Region

ANIMALS

AMPHIBIANS

Anaxyrus boreas	western (boreal) toad
Lithobates blairi	plains leopard frog
Lithobates pipiens	northern leopard frog
Lithobates sylvaticus	wood frog
Rana luteiventris	Columbia spotted frog

BIRDS

Accipiter gentilis	northern goshawk
Aegolius funereus	boreal owl
Ammodramus savannarum	grasshopper sparrow
Artemisiospiza nevadensis	sagebrush sparrow
Asio flammeus	short-eared owl
Athene cunicularia	burrowing owl
Buteo regalis	ferruginous hawk
Calamospiza melanocorys	lark bunting
Calcarius ornatus	chestnut-collared longspur
Centrocercus urophasianus	greater sage-grouse
Charadrius montanus	mountain plover
Chlidonias niger	black tern
Circus cyaneus	northern harrier
Contopus cooperi	olive-sided flycatcher
Cygnus buccinator	trumpeter swan
Cypseloides niger	black swift

2672.11 – Exhibit 01—Continued

Gymnorhinus cyanocephalus	pinyon jay
Lagopus leucura	white-tailed ptarmigan
Lanius ludovicianus	loggerhead shrike
Leiothlypis virginiae	Virginia's warbler
Melanerpes lewis	Lewis's woodpecker
Numenius americanus	long-billed curlew
Peucaea cassinii	Cassin's sparrow
Picoides arcticus	black-backed woodpecker
Progne subis	purple martin
Psiloscops flammeolus	flammulated owl
Rhynchophanes mccownii	thick-billed longspur
Setophaga graciae	Grace's warbler
Spizella breweri	Brewer's sparrow
Tympanuchus cupido	greater prairie-chicken
Tympanuchus phasianellus columbianus	Columbian sharp-tailed grouse

FISH

Catostomus latipinnis	flannelmouth sucker
Chrosomus eos	northern redbelly dace
Chrosomus erythrogaster	southern redbelly dace
Chrosomus neogaeus	finescale dace
Couesius plumbeus	lake chub
Fundulus sciadicus	plains topminnow
Gila pandora	Rio Grande chub
Gila robusta	roundtail chub
Hybognathus placitus	plains minnow
Macrhybopsis gelida	sturgeon chub
Margariscus nachtriebi	northern pearl dace

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2672.11 – Exhibit 01—Continued

Nocomis biguttatus	hornyhead chub
Oncorhynchus clarkii bouvieri	Yellowstone cutthroat trout
Oncorhynchus clarkii pleuriticus	Colorado River cutthroat trout
Oncorhynchus clarkii virginalis	Rio Grande cutthroat trout
Pantosteus discobolus	bluehead sucker
Pantosteus platyrhynchus	mountain sucker
Pantosteus plebeius	Rio Grande sucker
Platygobio gracilis	flathead chub

INSECTS

Atrytone arogos	arogos skipper
Bombus occidentalis	western bumble bee
Danaus plexippus	monarch
Hesperia ottoe	Ottoe skipper
Ochrotrichia susanae	Susan’s purse-making caddisfly
Somatochlora hudsonica	hudsonian emerald
Speyeria idalia	regal fritillary

MAMMALS

Conepatus leuconotus	American hog-nosed skunk
Corynorhinus townsendii	Townsend’s big-eared bat
Cynomys gunnisoni	Gunnison’s prairie dog
Cynomys leucurus	white-tailed prairie dog
Cynomys ludovicianus	black-tailed prairie Dog
Euderma maculatum	spotted bat
Lasiurus cinereus	hoary bat
Lontra canadensis	river otter
Martes caurina	Pacific marten
Microtus richardsoni	water vole

2672.11 – Exhibit 01—Continued

Myotis thysanodes	fringed myotis
Ovis canadensis canadensis	Rocky Mountain bighorn sheep
Ovis canadensis nelsoni	desert bighorn sheep
Sorex hoyi	pygmy shrew
Thomomys clusius	Wyoming pocket gopher
Vulpes macrotis	kit fox
Vulpes velox	swift fox

MOLLUSCS

Acroloxus coloradensis	Rocky Mountain capshell
Oreohelix pygmaea	pygmy mountain snail
Oreohelix strigosa cooperi	Cooper's Rocky Mountain snail, Black Hills mountainsnail

REPTILES

Storeria occipitomaculata pahasapae	Black Hills redbelly snake

PLANTS

NON-VASCULAR

Sphagnum angustifolium	sphagnum
Sphagnum balticum	Baltic sphagnum

FERNS & ALLIES

Botrychium ascendens	trianglelobe moonwort
Botrychium campestre	Iowa moonwort
Botrychium paradoxum	peculiar moonwort
Lycopodium complanatum	ground cedar
Selaginella selaginoides	club spikemoss

2672.11 – Exhibit 01—Continued

ANGIOSPERM - MONOCOT	
Calochortus flexuosus	winding mariposa lily
Carex alopecoidea	foxtail sedge
Carex diandra	lesser panicled sedge
Carex livida	livid sedge
Cypripedium montanum	mountain lady's slipper
Cypripedium parviflorum	lesser yellow lady's slipper
Eleocharis elliptica	elliptic spikerush
Epipactis gigantea	stream orchid
Eriophorum chamissonis	Chamisso's cottongrass
Eriophorum gracile	slender cottongrass
Festuca hallii	plains rough fescue
Amerorchis rotundifolia	roundleaf orchid
Kobresia simpliciuscula	simple bog sedge
Liparis loeselii	yellow widelip orchid
Malaxis monophyllos var. *brachypoda*	white adder's-mouth orchid
Platanthera orbiculata	lesser roundleaved orchid
Ptilagrostis porteri	Porter's false needlegrass
Schoenoplectus hallii	Hall's bulrush
Triteleia grandiflora	largeflower triteleia

ANGIOSPERM - DICOT	
Aliciella sedifolia	stonecrop gilia
Aquilegia chrysantha var. *rydbergii*	Rydberg's golden columbine
Aquilegia laramiensis	Laramie columbine
Armeria maritima ssp. *sibirica*	Siberian sea thrift
Asclepias uncialis	wheel milkweed
Astragalus barrii	Barr's milkvetch
Astragalus iodopetalus	violet milkvetch

2672.11 – Exhibit 01—Continued

Astragalus leptaleus	park milkvetch
Astragalus missouriensis var. *humistratus*	Missouri milkvetch
Astragalus proximus	Aztec milkvetch
Astragalus ripleyi	Ripley's milkvetch
Braya glabella	smooth northern-rockcress
Chenopodium cycloides	sandhill goosefoot
Cuscuta plattensis	prairie dodder
Descurainia torulosa	mountain tansymustard
Draba exunguiculata	clawless draba
Draba grayana	Gray's draba
Draba smithii	Smith's draba
Drosera anglica	English sundew
Drosera rotundifolia	roundleaf sundew
Eriogonum brandegeei	Brandegee's buckwheat
Eriogonum exilifolium	dropleaf buckwheat
Eriogonum visheri	Visher's buckwheat
Gutierrezia elegans	Lone Mesa snakeweed
Ipomopsis aggregata ssp. *weberi*	scarlet gilia
Lesquerella fremontii	Fremont's bladderpod
Lesquerella pruinosa	Pagosa Springs bladderpod
Mimulus gemmiparus	Rocky Mountain monkeyflower
Oenothera coloradensis ssp. *coloradensis*	Colorado butterfly plant
Neoparrya lithophila	Bill's neoparrya
Oreoxis humilis	Rocky Mountain alpineparsley
Packera mancosana	Mancos Shale packera
Parnassia kotzebuei	Kotzebue's grass of Parnassus
Penstemon absarokensis	Absaroka Range beardtongue

2672.11 – Exhibit 01—Continued

Penstemon caryi	Cary's beardtongue
Penstemon degeneri	Degener's beardtongue
Penstemon harringtonii	Harrington's beardtongue
Physaria didymocarpa ssp. *lanata*	common twinpod
Physaria pulvinata	cushion bladderpod
Physaria scrotiformis	silver twinpod
Potentilla rupincola	rock cinquefoil
Primula egaliksensis	Greenland primrose
Pyrrocoma carthamoides var. *subsquarrosa*	largeflower goldenweed
Pyrrocoma clementis var. *villosa*	tranquil goldenweed
Pyrrocoma integrifolia	many-stemmed goldenweed
Ranunculus grayi	ice cold buttercup
Rubus arcticus ssp. *acaulis*	dwarf raspberry
Salix arizonica	Arizona willow
Salix barrattiana	Barratt's willow
Salix candida	sageleaf willow
Salix myrtillifolia	blueberry willow
Salix serissima	autumn willow
Sanguinaria canadensis	bloodroot
Shoshonea pulvinata	Shoshone carrot
Thalictrum heliophilum	Cathedral Bluff meadow-rue
Townsendia condensata	cushion townsend daisy
Utricularia minor	lesser bladderwort
Viburnum opulus var. *americanum*	American cranberrybush
Viola selkirkii	Selkirk's violet
Xanthisma coloradoense	Colorado tansyaster

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2672.11 – Exhibit 02

Sensitive Species Evaluation Criteria

Rocky Mountain Region

Eight criteria (below) are considered in evaluating whether a species merits sensitive status. The combination of all eight factors, including uncertainty rankings, should be considered and synthesized in formulating the recommendation for sensitive status. Although information may not be complete for all 8 criteria, the available information must provide a compelling argument that population viability is of concern as evidenced by known or predicted downward trends. A species merits inclusion on the Regional list if it is at risk over a substantial part of its range.

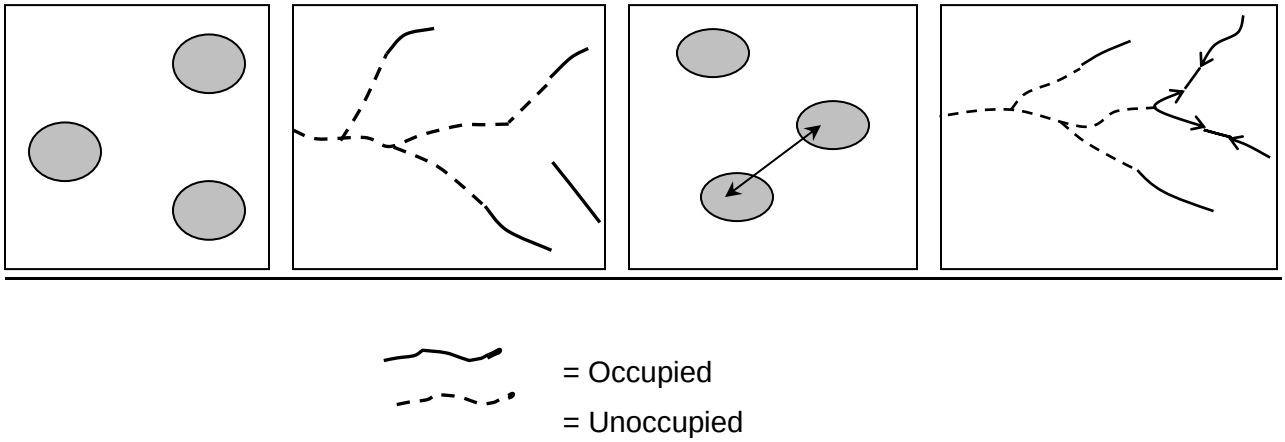
1. **Geographic distribution within the Rocky Mountain Region.** All else being equal, species that are present in only a few locations within the Rocky Mountain Region have a higher risk of extirpation, than those that have a broad distribution. Generally, species with the widest breeding distributions are the least vulnerable to deleterious environmental changes and catastrophic events. Species with restricted distribution and limited interchange of individuals between subpopulations and subpopulations are more vulnerable to local events (for example disease, storms) that may cause extirpation. Similarly, species associated with geographically limited habitats may be more extinction prone. Finally, if the current distribution pattern differs significantly from historical distribution, this change should be considered in evaluating the influence of geographic distribution on species persistence

   Rankings for geographic distribution within the Rocky Mountain Region:

   A = Scarce OR isolated. If a population or habitat meets any of the following conditions:

   1. Habitat is very scarce throughout the Region, indicating a strong potential for extirpations and little likelihood of recolonization. Or,
   2. Habitat or population connectivity is very limited due to factors such as environmental gradients, introduced species, disease, and habitat loss or degradation. Dispersal among patches is limited or not possible. Or,
   3. Habitat is naturally distributed as isolated patches, with limited opportunity for dispersal among patches. Some local populations may be extirpated, and rates of recolonization will likely be slow. Or, pictorially if populations or habitat look like any of the following:

2672.11 – Exhibit 02—Continued



= Occupied

= Unoccupied

B = Patchy OR gaps. If a population or habitat meets any of the following conditions:

1. Habitat exists primarily as patches, some of which are small or isolated to the degree that species interactions are limited by movements between patches. Local sub-populations in most of the species' range interact as a metapopulation[1] or patchy population, but some patches are so disjunct that sub-populations in those patches are essentially isolated from other populations. Or,
2. Habitat is broadly distributed across the planning area but gaps exist within this distribution. Disjunct patches of habitat are typically large enough and close enough together to other patches to permit dispersal among patches and to allow species to interact as a metapopulation. Or, pictorially if populations or habitat look like any of the following:

[1] Many spatially structured populations will not function as metapopulations. (The degree to which a particular species occurs as a metapopulation, or several, in the Region will be unknown for most taxa).

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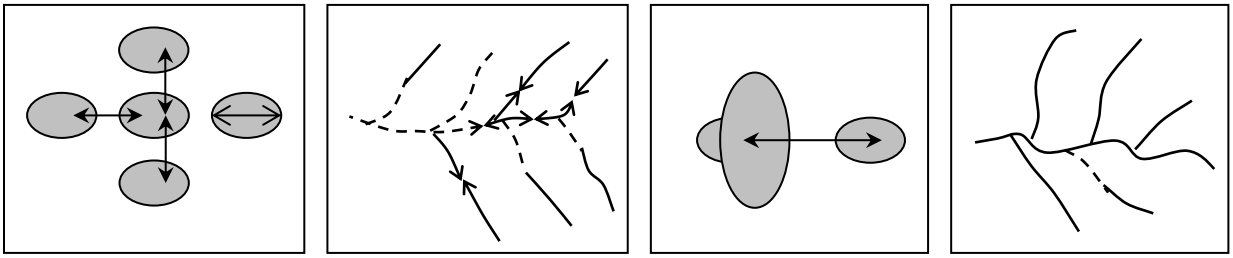
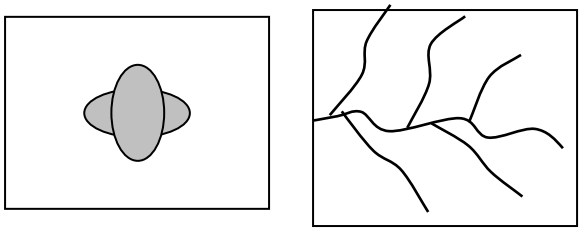
2672.11 – Exhibit 02—Continued



C = Contiguous. If a population or habitat meets the following conditions:

1. Habitat is broadly distributed across the Region with opportunity for continuous or nearly continuous occupation by species, little or no limitation on interaction among populations. Or, pictorially if populations or habitat look like either of the following:



D = Insufficient information to draw inferences about criterion

2. **Geographic distribution outside of the Rocky Mountain Region.** Species (or subspecies/ varieties) that occur only in the Rocky Mountain Region warrant a higher level of concern. A species (or subspecies/variety) that is mostly restricted to the Rocky Mountain Region with a limited distribution outside of the Rocky Mountain Region would have a moderate level of concern. The risk of extinction associated with activities in the Rocky Mountain Region can be moderated by the potential for recolonization from populations existing elsewhere, although low recruitment from outside populations would reduce effectiveness of the rescue effect. A species with wide distribution outside the Rocky Mountain Region would generally have a substantially reduced risk as a result of activities in the Rocky Mountain Region.

2672.11 – Exhibit 02—Continued

Rankings for geographic distribution outside the Rocky Mountain Region:

A = Only within the boundaries of the Rocky Mountain Region (meaning local or regional endemics)

B = Limited distribution outside the Rocky Mountain Region, or widely disjunct taxa for which the main distribution is at a significant distance from the Rocky Mountain Region

C = Wide distribution outside the Rocky Mountain Region

D = Insufficient information to draw inferences about criterion

3. **Capability of the species to disperse.** Dispersal of individuals from a population may be limited because a species has low vagility or because barriers to dispersal exist. All else being equal, species that do not disperse readily across large areas of unsuitable habitat are at greater risk of extinction than species that disperse readily across a variety of habitats. Movements of aquatic species may be limited by barriers such as culverts, impoundments, or discontinuous stream networks. The ability of plant species to disperse can depend on seed dispersal agents and reproductive strategy. Species that are mobile and for which dispersal is not limited will be assigned a value of no concern. Species that are able to disperse only within suitable habitats will be assigned a moderate level of concern. Species for which dispersal is limited by behavioral patterns or physical capability will be assigned a high level of concern.

   In evaluating this criterion, the importance of dispersal to the life history of the species will be considered. For instance, dispersal is a critical characteristic of the life history of species that occupy ephemeral habitats or that occur early in succession after disturbance. In contrast, dispersal plays a less significant role in the population dynamics of some species that occupy stable habitats (such as cave dwelling insects).

2672.11 – Exhibit 02—Continued

Rankings for capability to disperse:

A = Very limited dispersal ability (restricted dispersal capability coupled with ephemeral habitats)

B = Disperses only through suitable habitat (dispersal areas may or may not be corridors)

C = Readily disperses across landscapes with few habitat-related limitations

D = Insufficient information to draw inferences about criterion

4. **Abundance of the species in the Rocky Mountain Region.** Population density or abundance is a primary factor in determining whether a species will persist following habitat loss. All other things being equal, the lower the abundance or density, the greater the risk of extinction. Rankings will be based on categorical estimates of abundance relative to the expected abundance of that species in good habitat. This approach avoids problems associated with using population estimates or abundance estimates for widely diverse species. Base ranking on overall condition, but rationale should draw any contrasts between abundance on NFS lands vs. other ownerships.

Rankings for abundance in the Rocky Mountain Region:

A = Rare - current abundance (estimated number of individuals or populations) is low enough that stochastic and other factors lead to potential imperilment

B = Uncommon - current abundance (estimated number of individuals or populations) is large enough that demographic stochasticity is not likely to lead to rapid extinction, but, in combination with highly variable environmental factors, could pose a threat

C = Common – current abundance (estimated number of individuals or populations) is large enough that species persistence is not threatened by demographic stochasticity, in combination with environmental variation

D = Insufficient information to draw inferences about criterion

5. **Population trend in the Rocky Mountain Region.** Another primary factor indicating that viability may be at risk is a persistent downward trend in population size. Consistently declining populations are an indication of concern even if current population size is large. All species can be expected to have smaller population numbers at times. In fact, variability is the rule in populations and therefore, short-term declines should be interpreted cautiously. Alternatively, what could appear to be a downward trend may be part of a cyclic population and would not be

considered a consistent downward trend. An example may be snowshoe hares, which have population highs and lows over about a 10 - 15 year period. For this species, the pattern of population abundance may need to be considered over 3-4 cycles, before a population trend could be established. Results of local and national monitoring programs may be used to assign values for this criterion.

Rankings for population trend in the Rocky Mountain Region:

A = Significant downward or suspected downward population trend

B = Stable population

C = Upward population trend

D = Insufficient information to draw inferences about criterion

6. **Habitat trend in the Rocky Mountain Region.** Another primary factor indicating that viability may be at risk is a persistent downward trend in habitat quality or quantity. Trends in quantity and/or quality of the species' habitat can often be indicative of population trends, if actual species trend data are unavailable. Base ranking on overall condition, but rationale should draw any contrasts between abundance on NFS lands vs. other ownerships. Terrestrial, aquatic, wetland, and riparian ecosystem assessments may provide insights into habitat trends.

Rankings for habitat trend in the Rocky Mountain Region:

A = Decline in habitat quality or quantity

B = Stable amounts of suitable or potential habitat, relatively unchanged habitat quality

C = Improving habitat quality or increasing amounts of suitable or potential habitat

D = Insufficient information to draw inferences about criterion

7. **Vulnerability of habitats in the Rocky Mountain Region.** Anthropogenic modifications of habitat in the Rocky Mountain Region include urban and rural development, vegetation management, mining, water diversions, and road construction. Ecosystem assessments may be useful in providing insights into natural patterns and dynamics of ecosystems, the processes that influence current habitat conditions, and the degree to which management actions mimic natural disturbances and fall within the historical range of variation. This criterion will evaluate recent and potential effects of habitat modification on wildlife and plant species. Base ranking on overall extent of habitat modifications and resiliency to modification.

Rankings for the vulnerability of habitats in the Rocky Mountain Region:

A = Substantial modification of habitat has occurred or is anticipated with conditions departing from HRV, and/or habitat is impacted by modern stressors such as herbicides, nonnative invasive species, water diversions and dams, and so forth

B = Habitat modification is likely to fall within the range of historical conditions, but is being impacted by modern stressors

C = Habitat resilient, changes are within HRV, and modern stressors not significant

D = Insufficient information to draw inferences about criterion

8. **Life history and demographic characteristics of the species.** Life history factors such as reproductive rate, relationship with disease organisms, interaction with mutualists or symbionts, food web dynamics, relationship with predators, or relationship with competitors, can affect population size and ability to rebound from stochastic or anthropogenic population reductions. For vertebrates, examples of characteristics that viability risk include: number of reproductive cycles/year, average number of young produced/breeding cycle, minimum age of first reproduction, age specific survival rates, and social organization. Life history characteristics that affect viability in plants include lifespan and variation in life span of individuals (for example annual vs. perennial), seed dispersal strategy, variation in germination rates, relationship with pollination agents, and susceptibility to herbivory. Annual variation in vital rates can also be important.

   Species with strong mutualistic relationships, with low reproductive rates and which are highly susceptible to negative effects of disease, predation or competition may have less ability to recover from population declines. Those species will be assigned a high level of concern. Species with higher reproductive rates have a greater ability to recover from losses caused by predation, disease, or competition. Viability risk is also higher for populations depressed by introduced diseases or competitors, or that are susceptible to genetic introgression or inbreeding.

   Rankings for life history and demographic characteristics:

   A = Low reproductive rate **and** high mortality (for example, susceptible to disease, predation, or competition); OR life history characteristics suggest populations may not recover rapidly from disturbance events or other demographic risk factors are of concern

   B = Low reproductive rate **or** high mortality (for example, susceptible to disease, predation, or competition), but not both; OR life history

characteristics suggest populations have an intermediate ability to recover from disturbance events and no other demographic risk factors are known

C = High reproductive rate **and** not especially susceptible to disease, predation, or competition; OR species has life history characteristics that suggest populations will have a high ability to recover from disturbance events and no other demographic risk factors are known

D = Insufficient information to draw inferences about criterion

2672.43 - Exhibit 01

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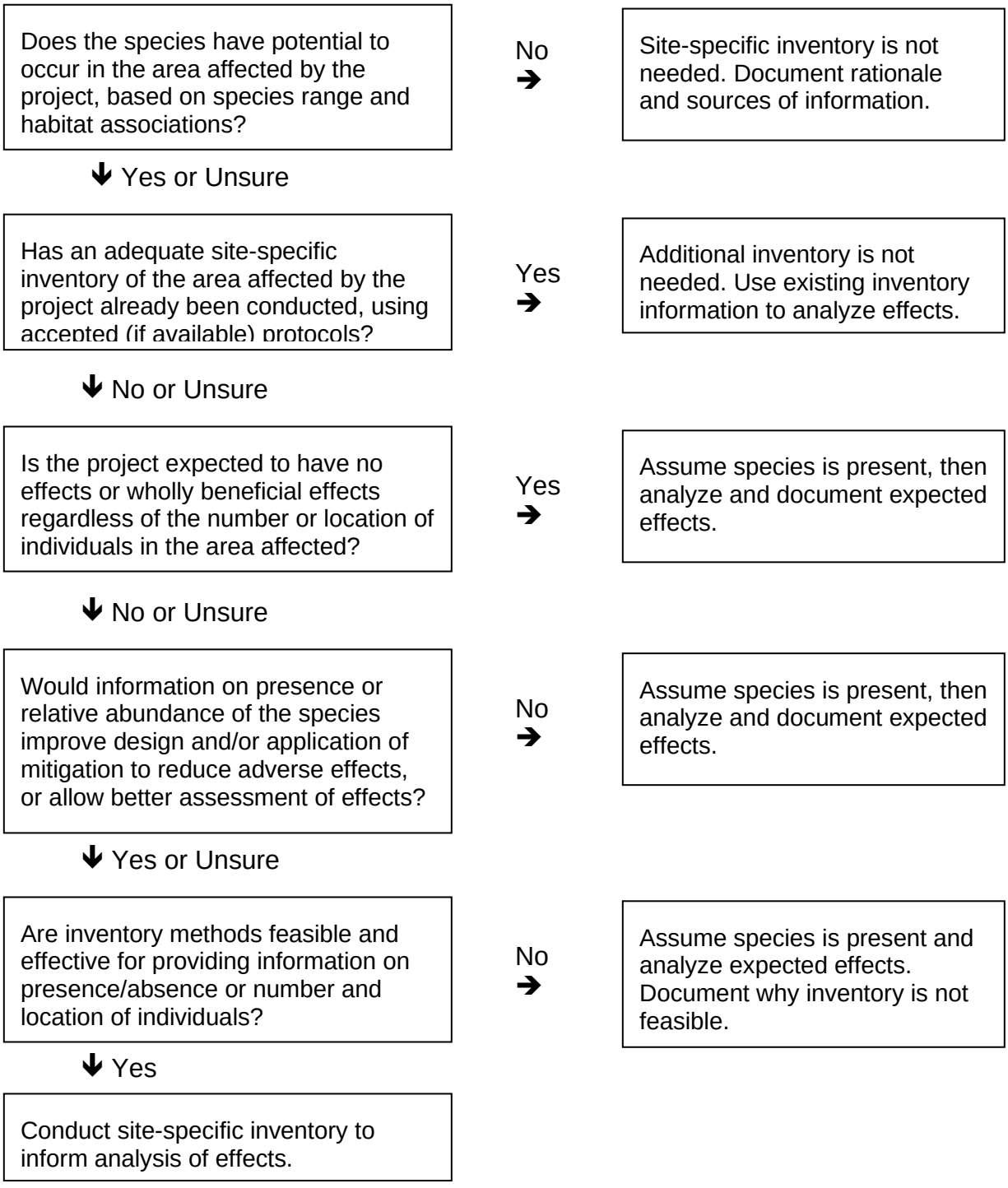
CHAPTER 70 – THREATENED, ENDANGERED AND SENSITIVE PLANTS AND ANIMALS

2672.43 - Exhibit 01



FSM 2600 – WILDLIFE, FISH AND SENSITIVE PLANT HABITAT MANAGEMENT
CHAPTER 70 – THREATENED, ENDANGERED AND SENSITIVE PLANTS AND ANIMALS

2676.1 – GRIZZLY BEAR

In the Greater Yellowstone recovery zone, as a result of sustained and coordinated management across agencies and land ownerships, all grizzly bear recovery criteria have been met since 1998. The Final conservation Strategy for the Grizzly Bear in the Greater Yellowstone Area was signed by the Regional Foresters in 2003.

2676.11 – Authority

4. Conservation Strategy for Grizzly Bear in the Greater Yellowstone Area. The Conservation Strategy identifies a Primary Conservation Area (PCA) where occupancy by grizzly bears is anticipated and acceptable and provides guidance for coordinated management and monitoring within and outside the PCA upon de-listing of the grizzly bear. The Memorandum of Understanding Detailing Agency Agreement to Implement the Conservation Strategy, included as pages 13-14 of the Conservation Strategy, was signed by the affected Regional Foresters in 2016.

2676.12 – Objectives

1. To maintain or enhance grizzly bear habitat conditions on National Forest System lands as compared to the 1998 baseline, in accordance with the goals established in the Conservation Strategy and the goals, standards and guidelines in National Forest Resource Management Plans.

2676.14 – Responsibility

2676.14a – Regional Forester

11. Ensure that the grizzly bear is added to the Regional Forester's list of sensitive species immediately upon de-listing under the Endangered Species Act.

2676.14b – Forest Supervisor

1. As assigned, the Forest Supervisor of the Shoshone NF shall serve as a member of the IGBC ecosystem management subcommittee. Upon de-listing, the Forest Supervisor shall serve as a member of the Yellowstone Grizzly Coordinating Committee, which has the responsibility for implementing the Conservation Strategy.

2. Work cooperatively with State wildlife agencies to meet population and habitat goals established in the Conservation Strategy.

3. Ensure interagency coordination at appropriate levels and maintain contact with interested publics.

4. Work together with State agencies to explore options to address impacts from private land development on conservation of the grizzly bear on National Forest System lands, while recognizing that State and Federal agencies do not have authority over private lands.

2676.15 – PLANNING

2676.15a – Habitat Analysis

1. Complete a biological evaluation for all projects potentially affecting the grizzly bear, inside and outside the PCA, to determine if habitat standards in the Conservation Strategy will be met. Modify projects as necessary to meet the habitat standards in the Conservation Strategy.

2. Evaluate grizzly bear habitat connectivity within and between ecosystems through the NEPA process for new road construction or reconstruction.

2676.15c – Monitoring

4. Cooperate in interagency monitoring and evaluation of the effectiveness of the Conservation Strategy.

2676.16 – Resource Management Coordination

Where habitat use by grizzly bears is likely, all contracts, special use permits, easements, annual operating plans and allotment management plans, and other authorizations shall include, as terms and conditions, feasible and effective measures to meet goals and objectives for grizzly bear conservation, including specifications for food storage and garbage disposal to comply with food storage orders. Full cooperation by permittees is a condition for receiving and holding permits.

2676.16d – Livestock Grazing

2. Where habitat use by grizzly bears is likely, allotment management plans or annual operating instructions must specify feasible measures for the timely removal, destruction, or treatment of livestock carcasses to provide for public safety or to prevent positive conditioning of grizzly bears to livestock carrion as food.

2676.2 – SAGE-GROUSE AND SAGEBRUSH HABITATS

Use the following guidelines for at-risk sage-grouse species (Greater, Gunnison) and management and restoration of their sagebrush habitats.

1. Maintain, enhance and restore sage-grouse habitats, populations and connectivity. Give priority to areas determined to have important sage-grouse populations, breeding sites or seasonal habitats, such as areas identified in the Wyoming Core Area Strategy, state-led and local working group sage-grouse plans, conservation agreements, and Forest and Grassland Plans.

2. Collaborate with the State, BLM, and other agencies and landowners to promote consistent management of sagebrush and sage-grouse habitats on adjoining lands.

3. Support and participate in State-wide and local sage-grouse working groups for the conservation of sage-grouse and sagebrush habitats.

4. Incorporate sage-grouse conservation measures into Forest Plan management direction and apply conservation measures for sage-grouse and sagebrush habitats into project design.

5. Propose vegetation management projects where warranted by range condition, site potential, and limiting factors for sage-grouse. Design of spatial patterns and treatment intervals should be based on an understanding of natural disturbance regimes. Select treatments that provide desired vegetation mosaics, while minimizing habitat recovery time to the extent possible. Plan the timing of projects to avoid the periods when wintering or nesting birds are present.

6. Do not undertake conversion of sagebrush communities to other cover types in any areas known to be occupied by wintering or nesting populations of sage-grouse.

7. Sagebrush management plans must address measures to minimize the establishment or increase of invasive plant species such as cheatgrass. Seed mixes used for revegetation should include sagebrush (the subspecies appropriate to the site) and other associated shrubs, native forbs (especially legumes), and native grasses as appropriate to the specific site. Avoid use of persistent non-native plant species and do not use invasive species in seed mixes.

8. Increase the visibility of fences and other structures that may be hazardous to flying sage-grouse. Avoid construction of fences near leks or on the crest of low hills. Remove unnecessary abandoned fences.

9. Avoid building overhead power lines or other tall structures that provide perch sites for raptors within 3 km of sage-grouse habitats. Bury power lines when possible. Wind energy development is not recommended in sage-grouse core areas or important seasonal habitats.

10. Coordinate with unit fire management personnel to identify important sage-grouse areas or sagebrush habitats particularly susceptible to wildfire and develop options and strategies for their protection during wildfire incidents and management response.

11. When developing drought contingency plans, ensure that sage-grouse needs are considered, including cover requirements for nesting and brood-rearing periods.

12. Limit the amount of surface disturbance from energy and mining exploration and development, including providing appropriate buffers and timing restrictions around leks. Limit noise levels at leks during the breeding season.

13. Limit the creation of new, or design and manage new and existing, artificial water impoundments to discourage breeding mosquitoes and prevent the spread of West Nile Virus where the virus poses a threat to sage-grouse.

14. Avoid developing new roads and motorized trails in or adjacent to areas of important sage-grouse populations, breeding sites or seasonal habitats. Evaluate existing roads and trails for opportunities for closure or realignment away from these areas.

2676.3 - PRAIRIE GROUSE AND GRASSLAND HABITATS

Use the following guidelines for at-risk species of prairie grouse (greater prairie-chicken, lesser prairie-chicken, Columbian sharp-tailed grouse) and management and restoration of their habitat.

1. Collaborate with the State game and fish agency to identify locations of prairie grouse populations, lek complexes, and seasonal habitats (nesting, brood-rearing, summer, autumn/winter).

2. In cooperation with the State and other agencies (e.g., BLM, NRCS) and adjacent landowners, design vegetation management projects using mechanical, chemical, or prescribed burning treatments to maintain or enhance prairie grouse habitats, populations and connectivity.

3. Manage vegetation to provide desired vegetation mosaics and sufficient residual cover to sustain prairie grouse populations. Ensure that drought contingency plans

consider prairie grouse habitat needs, and that livestock stocking rates or management practices are adjusted as necessary to provide cover requirements during the nesting and brood-rearing periods.

4. Habitat enhancement or restoration plans must address measures to minimize the establishment or increase of invasive plant species. Seed mixes used for revegetation should include native grasses and forbs as appropriate to the specific site. Avoid use of non-native, invasive plant species such as crested wheatgrass and sweetclover in seed mixes.

5. Increase the visibility of fences and other structures that may be hazardous to flying prairie grouse. Avoid construction of fences near leks or on the crest of low hills. Remove all unnecessary abandoned fences.

6. Avoid building power lines or other tall structures that provide perch sites for raptors within 3 km of important seasonal grouse habitats.

7. Limit the amount of surface disturbance from energy and mining exploration and development, including providing appropriate buffers and timing restrictions around leks. Limit noise levels at leks during the breeding season.

8. Consult conservation strategies such as the Grassland Conservation Plan for Prairie Grouse and resources of the North American Grouse Partnership (see website) for additional information related to the latest science and management of prairie grouse and their habitats.

2676.4 – FENS AND ASSOCIATED AT-RISK SPECIES AND HABITATS

Fens are a type of wetland that occupy only a small percentage of the landscape in the Rocky Mountains and the Nebraska sandhills but represent an important element of biological diversity. Because of their water-holding capability and unique characteristics, fens provide very stable habitats and often support several globally rare plant and invertebrate species and unique species assemblages. Examples of Region 2 at-risk plant species associated with fen and other groundwater dependent habitats include mountain and lesser yellow lady's slipper, Cathedral Bluff meadow-rue, roundleaf sundew, sageleaf willow, sphagnum moss, and foxtail, lesser panicled, and livid sedges. Fens are groundwater dependent ecosystems (GDEs) and are dominated by wetland plants. Many of the fens in the Region are over 6,000 years old, with peat accumulation rates ranging from about 9 to 45 cm per thousand years. In this Region, peat develops primarily from the roots of sedges, and to a lesser extent from mosses and grasses. *Sphagnum* moss occurs in some Rocky Mountain fens, but more often brown mosses are found.

Fens are defined in the Watershed Conservation Practices Handbook (FSH 2509.25) as: Geographically restricted wetlands where perennial groundwater discharge occurs on the time scale of millennia and where little erosion or mineral sediment deposition occurs. Fens are

generally characterized by their stable presence on the landscape for thousands of years and associated plant and animal communities that may be relics from historic glaciation periods. Because the rate of accumulation of peat in fens is so slow and the species associated with fens are so unique, these ecosystems are difficult to reclaim and are essentially irreplaceable. Fens are very sensitive to changes in water chemistry and quantity. By the time one has detected long-term change in a fen, it is often too late to reverse the impacts. In the Rocky Mountains and Region 2, there is no published documentation of fen function restoration once a fen has been heavily disturbed (Cooper & MacDonald 2000). Consequently, the U.S. Fish and Wildlife Service recommended no mitigation for loss of fens (USFWS 1999).

Use the following to guide conservation and restoration of lightly to moderately impacted fens.

1. Complete inventories and evaluations of fens, and associated GDEs, on National Forest System lands when practicable.

2. Determine water source of fen and include in fen buffer to protect from ground disturbance, when possible. Avoid altering groundwater connection. Restore and rehabilitate fens when the groundwater connection is intact.

3. As part of watershed or forest planning assessments and environmental analyses, identify known or potential fens on National Forest System lands. Make every reasonable effort to design projects to avoid adversely impacting the functions and ecological services of fens.

4. When changes to the amount, timing, and quality of discharging groundwater is unavoidable consider determining the environmental flows and levels (EFL) for impacted fens. More information on the EFL method can be found at the National Groundwater Program SharePoint site.

5. Consider establishing Special Areas (FSM 2360) to protect fens and their contributing watersheds, especially those used as mitigation for loss of aquatic resources (40 CFR Part 230, see 73 FR 19594-19705).

6. Include components in Forest Plans to maintain or restore wetlands, including fens (36 CFR 219.8(a)(2)). Give special emphasis to large-size fens, unusual kinds of fens (such as iron fens and calcareous fens), and those in especially pristine condition, and the hydrologic features influencing them.

7. Establish a network of reference fens, to serve as benchmarks against which fen condition can be assessed.

8. Encourage and sponsor administrative studies and research concerning the effects of use and management on fens.

9. Work cooperatively with other state and federal agencies and adjoining private landowners to promote the conservation of fens.

10. When possible, minimize winter activities in fens as assumptions about impacts to wetlands do not necessarily hold for fens. USDA Forest Service literature (2004b) indicates compaction of snow over fens and the increased thermal conductivity in the snow permits peatland soil to freeze, thus, changing the thermal environment in the fen.

11. To the extent possible, avoid any loss of rare wetlands such as fens and springs. NOTE: These wetlands cannot be replaced in-kind.

12. Do not build firelines in or around fens unless needed to protect life or property. It is better to let a fen burn than to build firelines around/through it with the risk of altering the fen groundwater connection and water chemistry.